A TREE FERN (*Cibotium menziesii*) NEAR THE VOLCANO KILAUEA ON THE ISLAND OF HAWAII. The tree ferns are conspicuous elements in the Hawaiian landscape in the wet areas.

science having given their services without salary. The work of the council has been supported by private gifts, including an appropriation of $50,000 from the Carnegie Corporation. Some scientific men have, however, enlisted as officers in the army, and the passage of the food bill and other measures will doubtless permit the government to support and control the scientific work being done on its behalf.

EXPLORATIONS IN THE HAWAIIAN ISLANDS

PROFESSOR A. S. HITCHCOCK, systematic agrostologist, U. S. Department of Agriculture, has spent about

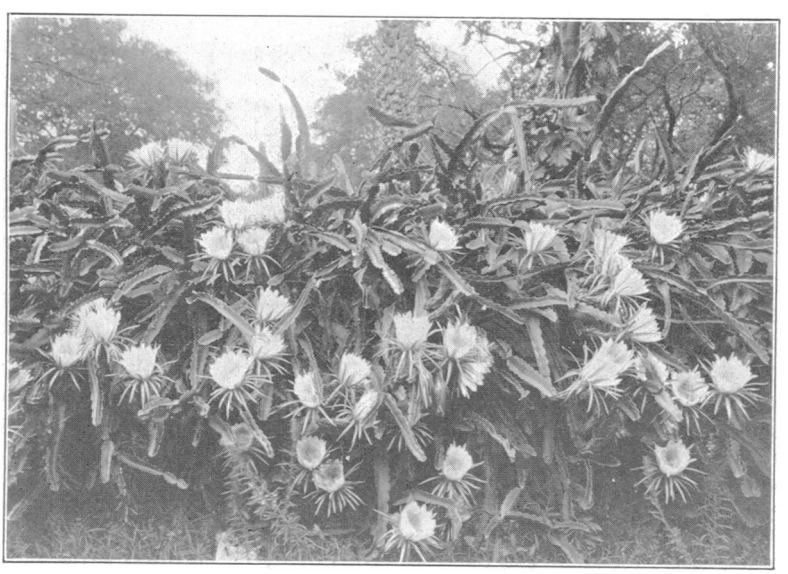
six months in the Hawaiian Islands, collecting and studying the flora, especially the grasses. He was assisted by his son, A. E. Hitchcock. The six larger islands of the group were visited.

The islands are of volcanic origin and are mainly composed of lava. Kauai, geologically the oldest island, shows the greatest effect of erosion, its deep canyons rivaling the beauty of the Grand Canyon of Colorado. Hawaii, the youngest island geologically, shows a great variety of recent lava. The active volcano Kilauea (4,000 feet) with its pit of boiling lava, is on Hawaii, while Haleakala, said to be the largest crater in the world, is on Maui, the second largest island of the group.

The flora of the islands is interesting because of its diversity and peculiarity. The diversity is due to the extremes of altitude and of moisture. All the islands are mountainous. Hawaii, the largest island of the group, includes the two high peaks Mauna Kea, 13,825 feet, and Mauna Loa, 13,675 feet. Vegetation on these peaks reaches to about 10,000 feet altitude, above which there is much snow in winter and snow banks persist throughout the year. The trade winds deposit their moisture on the eastern slopes of the mountains, thus giving rise to rain forests, while on the lee sides of the islands the conditions approach aridity. The rainfall on Waialeale, the highest peak of Kauai, is as much as 600 inches per annum, while on the western sides of the islands it may be less than 15 inches.

In Honolulu there is a marvelous variety of exotic trees and shrubs, including many kinds of palms. There is an especially rich collection of plants in the Hillebrand Garden, formerly owned by the author of Hillebrand's "Flora of the Hawaiian Islands." Scores of varieties of *Hibiscus* line the streets as hedge plants. The monkey pod or saman tree (*Pithecolobium saman*) is a beautiful round-topped shade tree.

One of the introduced trees of great economic importance is the algaroba tree, or kiawe, as the Hawaiians call it. It is found in a belt on the low-lands along the shores



NIGHTBLOOMING CEREUS. Growing over the wall in front of Punahou College, Honolulu. Strikingly beautiful when in flower.

of all the islands and occupies the soil almost to the exclusion of other plants. The pods are very nutritious and are eagerly eaten by all kinds of stock. Its flowers furnish an excellent quality of honey. The Molokai ranch alone produces 150 to 200 tons of strained honey per year. The prickly pear cactus (a species going under the name of *Opuntia tuna*) has become extensively naturalized in the dryer portions of all the islands. Ranchmen utilize this for feed when other kinds become scarce, the cattle eating the succulent joints in spite of the thorns. Two introduced shrubs now occupying extensive areas have become great pests. These are guava, whose fruit furnishes the delicious guava jelly, and lantana, with clusters of handsome parti-colored flowers. One of the important indigenous trees is the koa. This produces a valuable wood much used in cabinet making, now becoming well known through its use for making ukuleles.

Among the peculiar plants of the islands is the silver-sword, a strikingly beautiful composite with glistening silvery leaves, which grows only on the slopes of cinder cones in the crater of Haleakala and in a few very limited localities on Hawaii. The family Lobeliaceæ is represented by about 100 species belonging to 6 genera. The numerous arborescent or tree-like species are very peculiar and characteristic. Many of them form slender trunks like small palms, crowned with a large cluster of long narrow leaves. The trunks of some species are as much as 30 or 40 feet high and the large bright-colored flowers are sometimes remarkably beautiful.

The ferns are numerous and in the moist areas are often a dominating feature of the flora. Three species of tree ferns are found on the islands, and in some places form extensive forests. These plants produce at the base of the stipe, a great ball of brownish-yellow wool called pulu by the natives and used by them for stuffing pillows and mattresses.

A peculiar ecological feature of the islands is the open bogs found upon many of the summits of the high mountain ridges in the regions of heavy rainfall. Many species form more or less hemispherical tussocks which rise above the general level of the bog. A showy lobelia with numerous large cream-colored flowers as much as three and one half inches long, peculiar violets, and a sundew are found there. These boggy areas are devoid of trees and sometimes occupy rather extensive areas, the one on Mt. Waialeale covering several square miles.

SCIENTIFIC ITEMS

WE record with regret the death of Charles Horton Peck, former state botanist of New York; Edward Randolph Taylor, the American industrial chemist; of William Wallace Tooker, an authority on Indian archeology, and Robert Bell, formerly chief geologist of the Geological Survey of Canada.

THE Albert medal of the Royal Society of Arts for the current year has been awarded to Orville Wright, "in recognition of the value of the contributions of Wilbur and Orville Wright to the solution of the problem of mechanical flight." The report of the council says: "The largest share in the honor of having invented the aeroplane must always be given to the two brothers, Wilbur and Orville Wright."

M. ERNEST SOLVAY, the distinguished Belgian industrial chemist, who has made large gifts for the endowment of chemical and physical research, has been elected a corresponding member of the Paris Academy of Sciences in the place of the late Sir Henry Roscoe.